Curriculum Council
October 4, 2017
Notes

The GUSD Curriculum Council is comprised of teachers, instructional specialists, site and district administrators and Board members. The goal of the council is to provide centralized oversight of a coordinated curriculum that supports the GUSD mission and goals with a particular focus on NGSS in 2017-2018. Our purpose is to ensure horizontal and vertical alignment of curriculum, instruction, assessments, and professional learning that benefits all students.

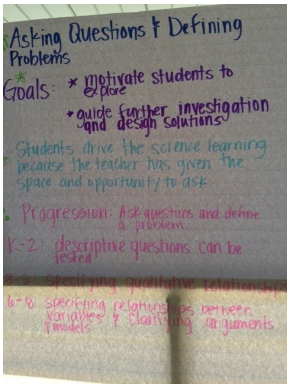
- Welcome
  - Purpose- provide a cohesive foundation for NGSS implementation
  - Introductions
  - Norms
  - Overview of the Year(s)
    - *Learn and know the standards*
    - *Understand the instructional shifts*
    - *Identify positives and negatives of available programs.*
    - *Serve as a resource for site staff*

- Overview of shifts
- Phenomena- think, see, wonder routine
  - presented stem thinking tools
  - Article: Using Phenomena
    - relatable to students
    - concrete understanding- meaningful
    - purpose
    - connect to general world
    - ownership over learning- curiosity
    - how to address wide range
    - instructional connections
    - like connecting science and engineering together- scientists and engineers related

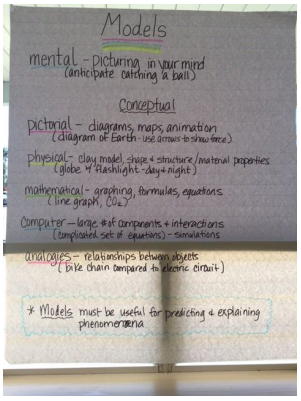
- Practices- Science and Engineering practices (SEPs)
  - what scientists do, behaviors
  - difficult to differentiate between scientists and engineers
  - poster and post it exercise
  - connections analogous to a pinball game, connections go back and forth, to and from, bounce back and forth, connect and reconnect
-
-

Teaching Others:

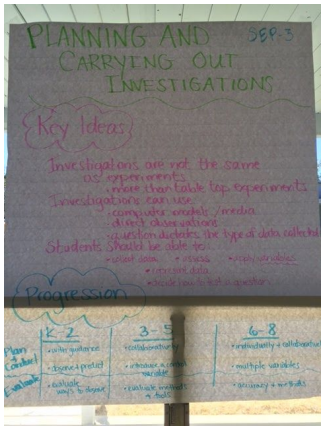
- **SEPs**



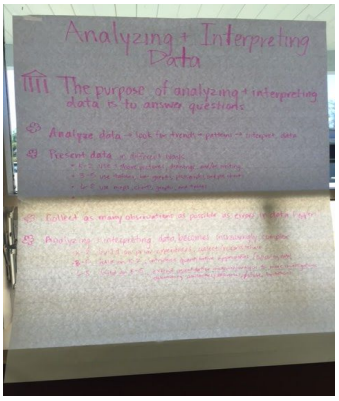
1. Asking Questions and Defining Problems
    - motivate students to explore
    - guide further investigation and design solutions
    - grade level progression from descriptive to specific to complex: asking questions, defining problems,
2. Developing and using models
    - mental, picturing in your mind
    - Conceptual- pictorial (diagrams), physical (clay model), mathematical (line graph), computer (scratch, CAD), analogies (compare relationship to something familiar), modell
    - difference between a model and representation
    - model shows related, representation is more diagram with labels

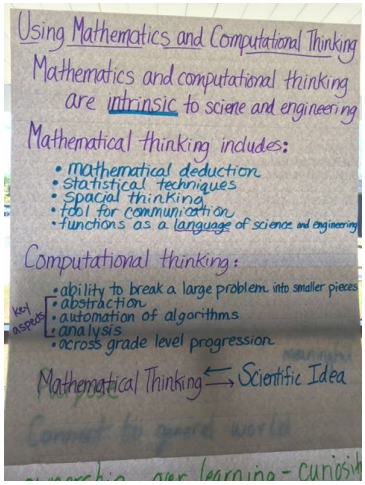


3. Planning and Carrying out Investigations
    - Key ideas- investigations are not the same as experiments
    - investigations can use . . .
    - students should
    - progression: planning and carrying out investigations from simplistic to complex, in K-2 heavy guidance, grades 3-5 introduce variables, using tools, Grades 6-8 students take over more of the investigation, evaluate the design, evidence, collect data
    - remember that a failed experiment is a learning process too, tied to growth mindset



4. Analysing and Interpreting Data
    - steps start with analyzing the data looking for patterns and trends
    - K-2 is usually pictures and drawings, collect data on what observe
    - 3-5 tables, bar graphs, pie charts;
    - 6-8 maps, tables and more complex, compare numbers, look for differences
    - collect data to evaluate and refine design solutions

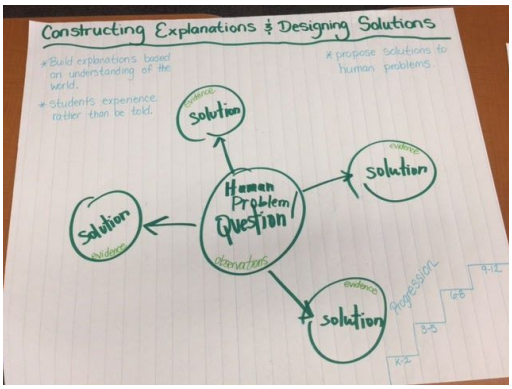




5. Using Mathematics and Computational Thinking
    - mathematics and computational thinking are intrinsic to science and engineering
    - Mathematical thinking includes:
    - mathematic deduction
    - statistic techniques
    - spatial thinking
    - tool for communication

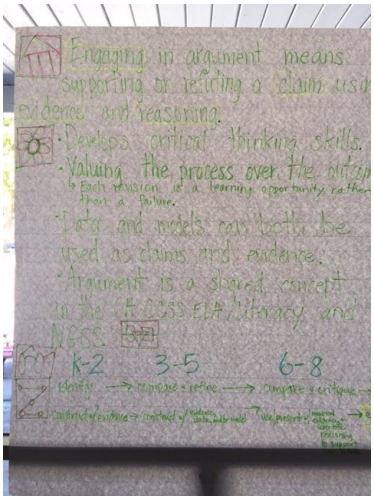
- functions as a language of science and engineering
- computational thinking:
- break a large problem down to smaller pieces
- abstraction, automation and analysis are key aspects
- across grade level progression
- mathematical thinking and scientific idea serve each other

6. Constructing explanations for science and designing solutions for engineering

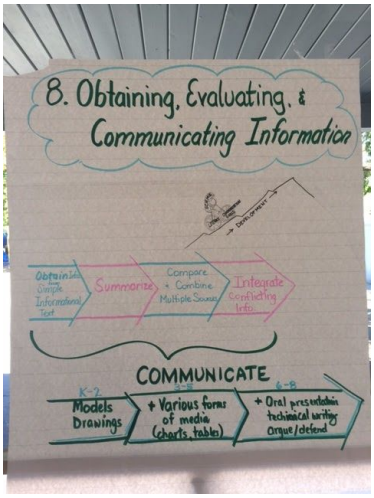


- Building explanations of the world
- proposed solutions to human problems
- start with a human problem, and develop multiple solutions
- solutions should be shared so they can be revised
- bay bridge example, beach oil spill
- progression is evidence; K-2 generate and compare solutions; 3-5 design multiple solutions, use evidence to construct explanations and identify relationships, identify evidence; Grades 6-8- multiple solutions with multiple sources of evidence, use quantitative and qualitative variables, prioritize; 9-12 making claims using dependent and independent variables, student generated design, evaluation
- multiple solutions- determine what is the best solution alongside other potential solutions

7. Engaging in argument from evidence



- engaging in argument, valuing the process over the outcome, data and models can be used as claims and evidence
- model for a claim but can use a model to refute a claim as well
- argument skills related to ELA/ELD
- Progression K-2 identify the beginning steps of what is an argument is; grades 3-5- cite relevant evidence for arguments; 6-8 create own models and critique and compare
- know difference between opinion and claim



8. Obtaining, evaluating and communicating information

- foundational literacy skills needed
- communicating ideas via models and drawings, various forms, oral presentation, technical writing

12:45-3:00

- DCIs- four domains: physical, life, earth and space, engineering and tech
  - Domain to Core Idea to Elements
  - observe the phenomena from K-12 using core ideas as a reference
  - looking at the DCIs across the grade spans, not for each grade level.
  - move from to visible, macroscopic to microscopic, to subatomic levels for interactions within and among systems
  - conduct activities to explore given prompt at each station using SEPs
  - members worked at different stations to determine SEPs.
- Takeaways regarding Instructional Shifts
  - moving from knowledge + inquiry = 3-dimensional phenomena
  - progressions, connections, science taught in a coherent way
  - Make learning relevant and meaningful based on student needs, students experiences and community needs
  - used to tell but now explore/investigate- explain how or why a phenomena happens
  - focus is on the process, design of science
  - not just doing fun activities, doing activities with a purpose- intentionality
  - vertically aligned through the grade levels
  - old science test had more memorization, California Science Test (CAST) asks students to apply learning
  - student experiences are important
  - the ability to revise design, process, answer, solution
  -
- Cross-cutting concepts

3:00-3:30

- Housekeeping
  - Sub Committee sign-ups
    - Sign up for ONE sub committee- no more than five on a sub committee
  - Guidebook: need to discuss process for changing Guidebooks- no changes but collect feedback, changes are errors only or clarification, need to ensure communication for all
    - Note: Wonders Benchmarks (as printed in the Teacher Guidebook) will be reduced to reflect only Unit 1 and Unit 2 or the Units reflected in the trimester. Suggestion is to read the passages to students and let them answer online.
    - Discussion on rationale for SEPs chosen.
  - **Milestones**
  - 17-18: Learn
  - Summer 2018: summer institute to continue interdisciplinary work
  - 18-19: quasi pilots- look at NGSS summary in CC folder (may be in January)
  - Late Spring 2019- choose program to implement
  - 19-20: official NGSS implementation

Next meeting on 11/1/17, 8:30 at Moxi by train, plane, or automobile!

Cross cutting concepts